

In the Claims

1. (Currently Amended) A probe for improved homogeneity in magnetic resonance (MR) imaging, the probe comprising:

an RF coil for receiving MR data;

a collapsible housing enclosing the RF coil and constructed for insertion into a subject to be imaged; ~~and~~

a homogeneity enhancing material disposable within the collapsible housing; and

a retainer that secures the RF coil within the subject to be imaged.

2. (Original) The probe of claim 1 wherein the homogeneity enhancing material has a magnetic permeability similar to that of the subject.

3. (Currently Amended) The probe of claim 1 wherein the collapsible housing is an expandable membrane to allow the RF coil to receive MR data from a wider area of the subject when expanded with the homogeneity enhancing material ~~then would be otherwise~~ than when collapsed.

4. (Original) The probe of claim 1 wherein the homogeneity enhancing material includes one of a gel and a liquid.

5. (Original) The probe of claim 1 wherein the homogeneity enhancing material includes a material having a magnetic permeability similar to that of water.

6. (Original) The probe of claim 1 wherein the homogeneity enhancing material includes a perfluorocarbon material.

7. (Original) The probe of claim 3 wherein the homogeneity enhancing material expands the collapsible housing after insertion into the subject to be imaged.
8. (Currently Amended) The probe of claim 7 wherein the collapsible housing is ~~constructed free of gases~~ free of air when expanded by the homogeneity enhancing material.
9. (Original) The probe of claim 1 formed as an endorectal probe.
10. (Currently Amended) The probe of claim 1 ~~further comprising~~ wherein the retainer is an inflatable retainer that secures the RF coil within the subject to be imaged when inflated with the homogeneity enhancing fluid.
11. (Currently Amended) An MR imaging apparatus comprising:
 - a plurality of gradient coils positioned about a bore of a magnet to impress a polarizing magnetic field;
 - an RF transceiver system;
 - an RF switch controlled by a pulse module to transmit RF signals;
 - an RF coil assembly configured for internal MR image acquisition and having at least one RF coil disposed within a housing that is constructed for insertion into a subject; ~~and~~
 - a homogeneity enhancing fluid disposable within the housing to improve homogeneity during internal MR image acquisition; and
 - an electronically controlled pump to inflate the housing with the homogeneity enhancing fluid.

12. (Original) The MR imaging apparatus of claim 11 wherein the housing is an expandable membrane and the homogeneity enhancing fluid causes the expandable membrane to inflate.

13. (Original) The MR imaging apparatus of claim 11 wherein the homogeneity enhancing material has a magnetic permeability similar to that of the subject.

14. (Original) The MR imaging apparatus of claim 11 wherein the homogeneity enhancing fluid includes a perfluorocarbon material.

15. (Canceled)

16. (Canceled)

17. (Canceled)

18. (Currently Amended) The MR imaging apparatus of claim ~~15~~ 11 wherein the electronically controlled pump control means automatically inflates the housing with the homogeneity enhancing fluid.

19. (Original) The MR imaging apparatus of claim 11 further comprising a retainer filled with the homogeneity enhancing fluid to secure the at least one RF coil within the subject.

20. (Currently Amended) A method of using an MR imaging device with improved homogeneity comprising:

positioning an RF coil within a housing that is capable of being inserted within an imaging subject;

attaching a pump to the housing to inflate the housing with a homogeneity enhancing material; and

filling the housing with ~~[[a]]~~ the homogeneity enhancing material.

21. (Canceled)
22. (Currently Amended) The method ~~of manufacturing~~ of claim 20 further comprising attaching an automated inflation control to control the inflation of the housing with a homogeneity enhancing material.
23. (Currently Amended) The method ~~of manufacturing~~ of claim 20 wherein the homogeneity enhancing material comprises a perfluorocarbon material
24. (Currently Amended) The method ~~of manufacturing~~ of claim 20 wherein the homogeneity enhancing material includes one of a gel and a liquid.
25. (Currently Amended) The method ~~of manufacturing~~ of claim 20 wherein the homogeneity enhancing material has a magnetic permeability similar to that of the imaging subject.
26. (Currently Amended) A kit for an MR imaging device with improved homogeneity comprising:
 - an RF coil;
 - a flexible housing configured to contain the RF coil therein and further configured to be inserted within an imaging subject; ~~and~~

a supply of a homogeneity enhancing material to fill and expand the flexible housing after insertion into the imaging subject; and
a retainer that secures the RF coil within the subject to be imaged.